ADVANCED HEALTHCARE MATERIALS

Supporting Information

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Exposure to Carbon Nanotubes Leads to Changes in the Cellular Biomechanics

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Table S1: Energy dispersive X-ray analysis (EDX) allowed chemical characterization in the scanning electron microscope (SEM) of pristine and 1h acid washed multi-walled carbon nanotubes (MWCNTs). Following the acid treatment, the content of oxygen (O) increases while the contents of iron (Fe) and carbon (C) decreases in the 1 h acid treated sample.

Element	Pristine MWCNTs (wt %)	1h Acid Washed MWCNTs (wt %)
C	92.04	91.37
O	4.81	5.61
Al	0.16	0.20
Si	0.10	0.08
S	0.38	0.47
Fe	2.50	2.09

Table S2: Solubility of pristine and 1 h acid washed multi-walled carbon nanotubes (MWCNTs) in different solutions.

Type	DI Water (mg/ml)	PBS (mg/ml)	DMEM (mg/ml)	DMEM+FBS (mg/ml)
Pristine MWCNTs	0.13	0.13	0.38	1.88
1h Acid washed MWCNTs	0.32	0.44	0.88	3.38

Table S3: Length measurements of pristine and 1h acid washed multi-walled carbon nanotubes (MWCNTs). The length measurement of both pristine and 1h acid washed MWCNTs are presented as mean ± standard deviation; at least 30 individual nanotubes were analyzed to obtain the average length distribution.

Material	Mean (nm)	Standard Deviation (SD) (nm)
Pristine MWCNTs	5012	2675
1h Acid Washed MWCNTs	947	451

Table S4: Young modulus distribution of control cells (13 individual cells were analyzed) and cells incubated with 1h acid-washed MWCNTs for 1h (13 individual cells were analyzed). Randomized block design was used for the experimental design and data analysis.

Group	Counts	0-100kPa	100-200kPa	200-400kPa	400-600kPa	>600kPa
Control cells	540	52.59%	30.00%	12.87%	3.89%	0.74%
Cells incubated with 1h acid-washed MWCNTs for 1 h	594	48.31%	28.96%	16.33%	4.40%	2.00%
Control cells (nucleus region)	119	68.07%	28.57%	3.36%	0%	0%
Cells incubated with 1h acid-washed MWCNTs for 1 h (nucleus region)	142	54.23%	37.32%	8.45%	0%	0%

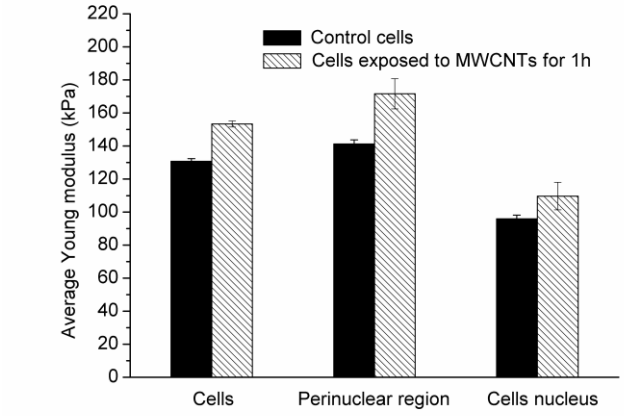

Figure S1: Statistical analysis of average Young modulus distribution of control cells and cells exposed to 1h acid-washed MWCNTs. In these experiments the cells were exposed to MWCNTs for 1 h. There are no statistically significant differences between the control cells and cells exposed to MWCNTs for 1h.